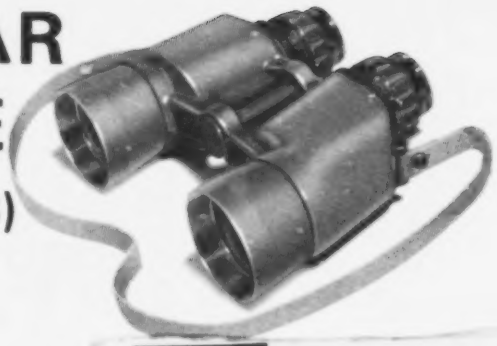
9-1240-381-10

OPERATOR'S MANUAL

BINOCULAR M19 W/E

(1240-00-930-3833)



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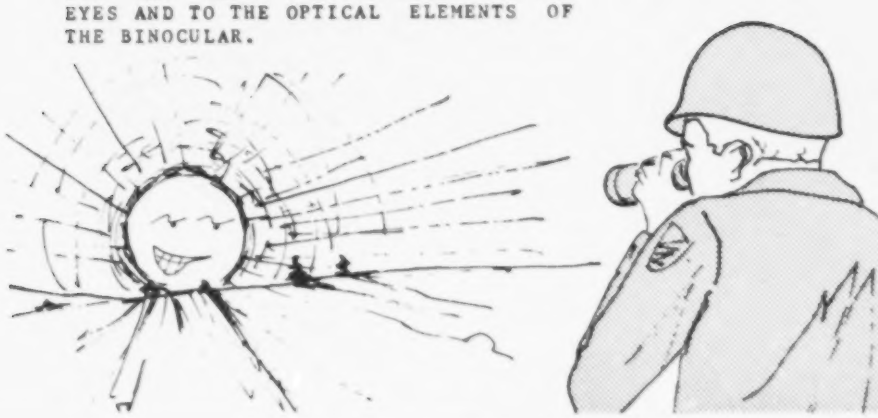
TM9-1240-381-10

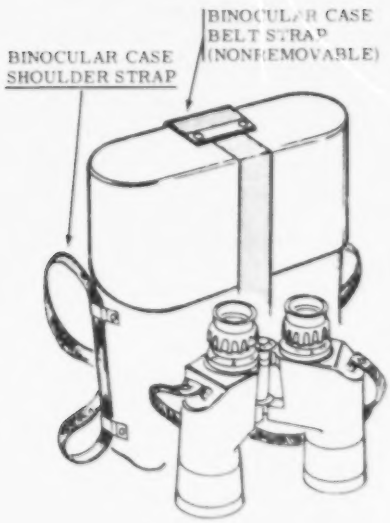
NOVEMBER 1977

WARNING

WHEN USING THE BINOCULAR, NEVER POINT IT DIRECTLY AT THE SUN. THE HEAT GENERATED BY THE FOCUSED RAYS OF THE SUN MAY CAUSE SERIOUS DAMAGE TO THE EYES AND TO THE OPTICAL ELEMENTS OF THE BINOCULAR.

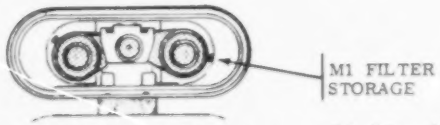


DESCRIPTION



Note

The M1 filter (NSN 1240-00-769-1956) is an auxiliary piece of equipment which can be attached to the binocular eyecups.

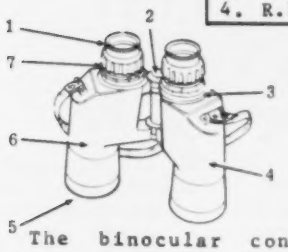


Binocular M19 is a lightweight, compact instrument intended for use in general field observation and fire detection. The left telescope of the binocular includes a horizontal and vertical reticle graduated in 10-mil increments.

The plastic carrying case provides protection for the binocular and is equipped with a belt strap and shoulder strap for easy portability. The binocular must be fully open and the objective assemblies facing up for insertion in the case.

DESCRIPTION (CONT'D)

1. Eyepiece Assembly
2. Interpupillary Scale
3. Diopter Scale
4. R.H. Housing
5. Objective Assembly
6. L.H. Housing
7. Knurled Adapter Ring

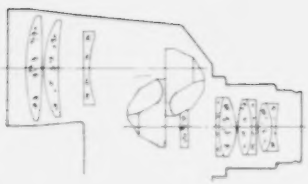


The binocular consists of two telescopes hinged at the center by an index pin and sleeve arrangement. Each telescope is comprised of an eyepiece assembly (1), a housing assembly (4 or 6) and an objective assembly (5). These assemblies are optically prealigned at the factory and must not be disassembled.

The friction necessary to maintain the proper interpupillary distance (distance between the eyes) is created by eleven rubber O-rings installed in the grooves of the index pin. Once this distance is set for your eye spacing, the reading on the scale (2) can be noted for future reference.

By rotating the knurled adapter ring (7) of the eyepiece, you can focus each telescope to accommodate your particular optical characteristics. The reading on each diopter scale (3) should then be noted for future reference.

GENERAL CHARACTERISTICS



Optical Characteristics

Objective Lens Diameter	50mm
Magnification	7X
Field of View	130 mils

Physical Characteristics

Width (Open Position)	190.5mm
Length	152.4mm
Thickness	63.5mm
Weight (Binocular Only)	.966 kg
Weight (Case Only)	.426 kg

HANDLING PRECAUTIONS

DO'S

Handle the binocular with care. Dropping or jarring the binocular can damage or misalign the optics. Use the neckstrap to protect against accidental dropping of the binocular.

Keep the binocular as clean and dry as possible and always store it in the carrying case when not actually in use.

Follow the instructions outlined in this TM to obtain the best possible usage and service from the binocular.

DON'TS

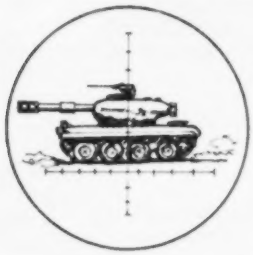
Do not use a dry cloth to clean the glass surfaces of the binocular. Specific cleaning instructions are given on page 11.

Do not attempt to open or close the binocular beyond its stop limits as this may damage internal and external parts.

Do not unnecessarily expose the binocular to severe weather elements. Special precautions are noted on pages 9 and 10.

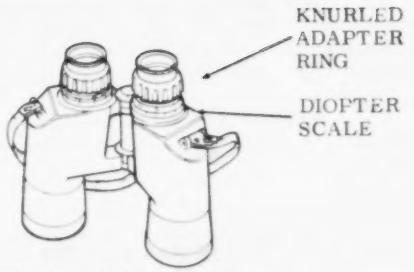
Do not force the knurled adapter rings beyond marked diopter scale readings as this may damage internal parts.

OPERATING ADJUSTMENTS



Interpupillary Adjustment

To obtain the proper interpupillary setting for your particular eye spacing, view the sky through the binocular. Then rotate the telescopes about the center hinge until both circular fields of view have merged into one circle. Note the reading on the interpupillary scale for future reference.



Diopter Adjustment

Each eyepiece of the binocular has a diopter scale graduated from plus 4 to minus 4 in half-diopter increments and can be adjusted to suit your eyesight characteristics. Rotate the knurled adapter rings to obtain the sharpest focus and note the scale readings for future reference.

NORMAL OPERATION

(1) Attach the carrying case to your belt by means of the belt strap. Be sure to snap the belt strap firmly on the bottom stud. For convenience, the carrying case can also be chest mounted.

(2) Remove the binocular from the case and immediately unwrap the neckstrap and place it about your neck.

(3) Close the telescopes of the binocular until the interpupillary index scale is at the proper setting for your use (see page 5).

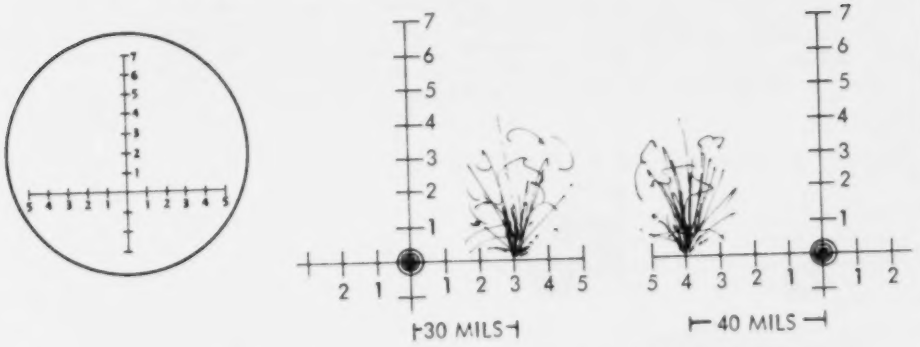
(4) Rotate the eyepiece adapter rings to obtain the proper diopter settings on the diopter scale (see page 5).

(5) When sighting through the binocular, hold the binocular in a comfortable and stable position.

(6) Refer to pages 9 and 10 for precautions to be observed when unusual weather or atmospheric conditions prevail.

USE OF RETICLE

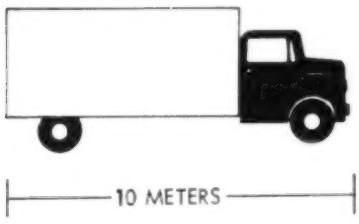
The left telescope of the binocular includes a horizontal and vertical scale reticle graduated in 10-mil increment unit markings (1 unit = 10 mils, 2 units = 20 mils, etc.).

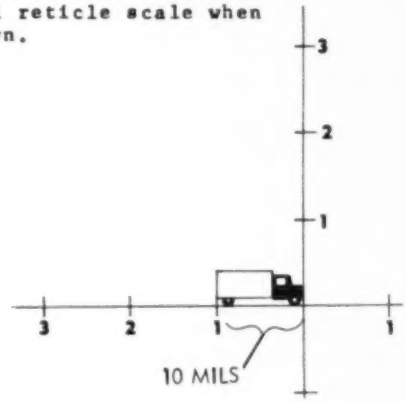


Fire corrections can be made by viewing the impact area and determining angular corrections by use of the left or right horizontal reticle scale.

USE OF RETICLE (CONT'D)

In determining range, if an object fills one 10-mil unit marking on the horizontal reticle scale and is known to be 10 meters wide, the object is 1000 meters away. If the same size object fills two unit markings (20 mils), it would be 500 meters away. The same formula can be used to determine range with the vertical reticle scale when the height of an object is known.



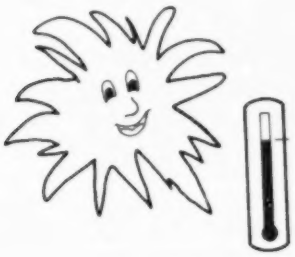


EXTREME COLD

(1) Avoid breathing directly on the optical elements of the binocular. The breath may condense and freeze.

(2) Do not expose the binocular to sudden and extreme temperature changes, such as carrying it directly from a well-heated area into sub-zero temperatures. Extreme temperature changes may cause the optical elements to crack.

EXTREME HEAT

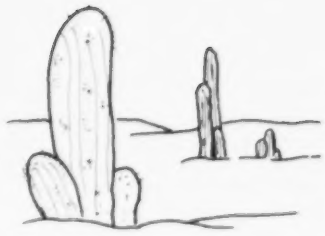


(1) Do not allow the binocular to lie unprotected from the direct rays of the sun. The intensified heat may damage the binocular mechanisms.

(2) Place the binocular in its carrying case before entering an air-conditioned area. This will permit the binocular to cool down gradually and prevent condensation from forming.

OTHER EXTREME CONDITIONS

Sand and Dust



(1) Always keep the binocular in its carrying case when not actually in use. Sand and dust will etch glass surfaces and can penetrate through the smallest openings, thereby causing damage to adjusting mechanisms.

(2) Upon completion of operations, remove all particles of sand and dust from optical elements as instructed on page 11.

High Humidity or Salty Conditions

(1) Avoid exposing the binocular to direct salt spray. Salt water is extremely corrosive and can cause irreparable damage to the binocular.

(2) Always dry the binocular thoroughly after use and immediately store it in the carrying case.

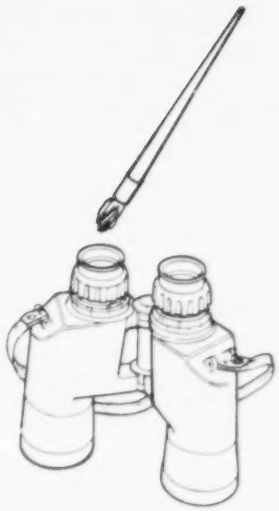
CLEANING INSTRUCTIONS

Case and Binocular Exterior

Clean the exterior of the carry‘ ,g case and the binocular (but not the lenses) with a lint-free cloth. Remove grease spots, fingerprints and other soil with soap and water and a well wrung-out cloth; then dry with a clean, lint-free cloth. Blow dirt and lint from case interior.

Optical Surfaces

Blow as much dust and dirt as possible from the exposed lens surfaces. Then, using a soft brush, brush across the surface with light, quick strokes, flicking the brush after each stroke to dislodge the dust it has picked up. When all visible particles of dust and dirt have been removed, moisten a piece of lens tissue with lens cleaner and gently wipe over the surface.



PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Before Operation

(1) Check condition and security or all carrying straps. Inspect carrying case for visible damage and make sure case cover latches securely.

(2) Inspect binocular exterior and glass surfaces for cleanliness, cracks and scratches. Clean, if necessary (page 11).

After Operation

(1) If binocular and case have been exposed to inclement weather conditions, be sure to dry them thoroughly with clean, lint-free cloths.

(2) Clean the carrying case, the binocular exterior and the optical surfaces thoroughly as instructed on page 11.

USE THE PROPER TOOLS !

(1) Blower, Watchmaker's (5120-00-254-4612)

(2) Brush, Artist's (8020-00-262-9099)

(3) Brush, Artist's (8020-00-224-8024)

(4) Tissue, Lens (6640-00-559-1385)

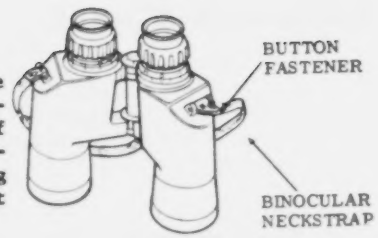
(5) Tape, Masking (7510-00-266-6711)

(6) Cleaner, Lens (6850-00-064-6287)

OPERATOR REPAIRS

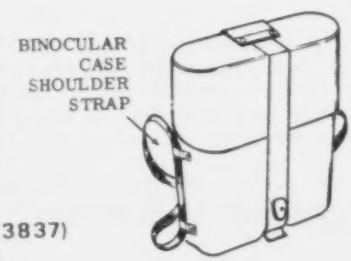
Replacing Binocular Neckstrap (NSN 1240-00-253-5893)

Unbutton the strap fasteners at the secured ends of the neckstrap and withdraw the neckstrap from the loops of the binocular. Install the new neckstrap in the reverse fashion, making certain that the neckstrap does not become twisted in the process.



Replacing Binocular Case Shoulder Strap (NSN 1240-00-253-5892)

Unfasten the binocular case shoulder strap and withdraw the shoulder strap from the loops of the carrying case. Install the new shoulder strap in reverse fashion, making certain that the shoulder strap does not become twisted in the process.



Replacing Binocular Case (NSN 1240-00-930-3837)

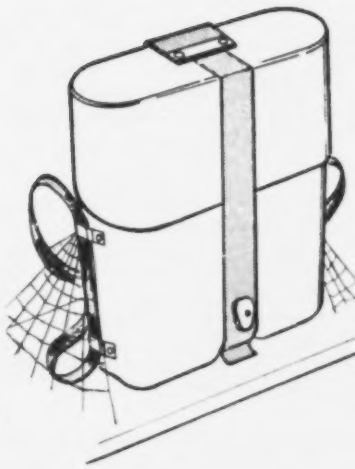
The binocular case should be replaced when damaged or unserviceable.

BINOCULAR STORAGE

(1) Clean the binocular and carrying case thoroughly as instructed on page 11.

(2) Before placing the binocular in the carrying case, pad all exposed glass surfaces with a few thicknesses of lens tissue and secure the pads in position with masking tape.

(3) Latch the case securely and store it on a shelf in a dry, well-ventilated area.



FORMS AND RECORDS

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

LET'S HEAR YOUR COMMENTS

Have you discovered any errors in this manual? Don't keep them to yourself....jot down the dope about them, including the page number and, if applicable, the illustration involved. Indicate exactly what you think is wrong and send your comments to.....

COMMANDER
U.S. ARMY ARMAMENT MATERIEL READINESS COMMAND
ATTN: DRSAR-MAS
ROCK ISLAND, IL. 61201

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Technical Manual

No. 9-1240-381-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 30 November 1977

This manual is published for the use of all concerned.

BY ORDER OF THE SECRETARY OF THE ARMY:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

OFFICIAL:

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Brigadier General, United States Army
The Adjutant General

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